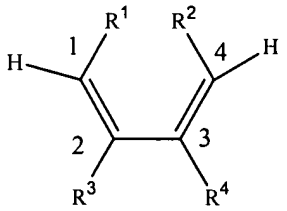
What is claimed is:

1. A re-moldable polymeric resin suitable for use in an integrated circuit assembly comprising as polymerized units one or more dienophiles and one or more dienes, wherein at least one diene contains at least a pair of conjugated double bonds capable of undergoing a Diels-Alder reaction and having at least one hydrogen on the first and fourth carbons of the conjugated double bonds.

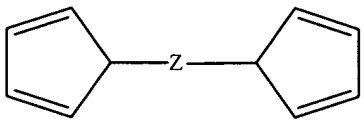
2. The re-moldable polymeric resin of claim 1 wherein at least one diene has the formula



(I)

where R^1, R^2, R^3 and R^4 are independently selected from hydrogen, alkyl, alkenyl, aryl, heteroatoms, and substituted heteroatoms; and R^1 and R^2 or R^3 and R^4 may be taken together to form a cyclodiene.

3. The re-moldable polymeric resin of claim 1 wherein at least one diene has the formula



(II)

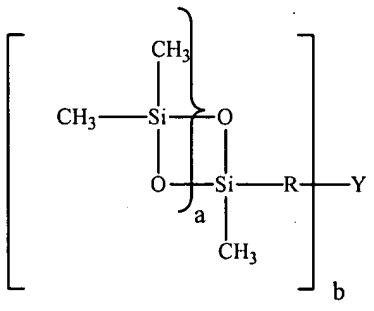
wherein Z is selected from alkyl, alkenyl, aryl, arylene ether, alkylaryl, (meth)acrylic moiety, epoxy moiety, and siloxane moiety.

4. The re-moldable polymeric resin of claim 1 wherein at least one dienophile contains one or more Diels-Alder participating double bonds where at least 2 of the 4 substituents on the olefinic carbons are hydrogen.

5. A method of preparing an encapsulated integrated circuit assembly comprising the steps of: a) providing an integrated circuit assembly comprising an integrated circuit attached to a carrier substrate by a plurality of metallic connections, the metallic connections extending from the carrier substrate to the integrated circuit to form a gap between the carrier substrate and the integrated circuit; b) filling the gap with an underfill composition comprising a binder selected from the group consisting of a Diels-Alder reaction polymer and a polycyclosiloxane, wherein

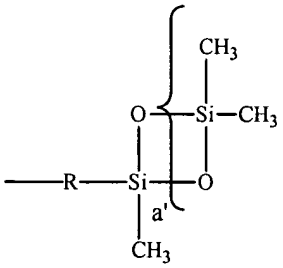
the Diels-Alder reaction polymer includes as polymerized units one or more dienophiles and one or more dienes, wherein at least one diene contains one or more hydrogens bonded to each of the olefinic carbons of the diene.

6. The method of claim 5 wherein the polycyclosiloxane comprises a compound of formula VII:



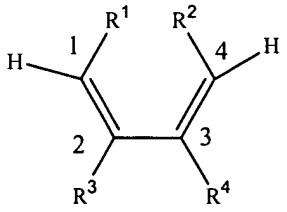
(VII)

wherein a = 1-20; b = the valence of Y; R is O, $(C_1\text{-}C_{12})$alkylene, $(C_1\text{-}C_3)$alkyleneoxy, arylene, and aryleneoxy; and Y is H, OH, $(SiE_c)_d$ and



; each E is independently R, H, O, OH, $(C_1\text{-}C_{12})$alkyl, $(C_2\text{-}C_{12})$alkenyl, aryl and $(C_1\text{-}C_{12})$alkoxy; c = 0-3; d = 1-100; and a' = 1-20.

7. The method of claim 5 wherein at least one diene has the formula

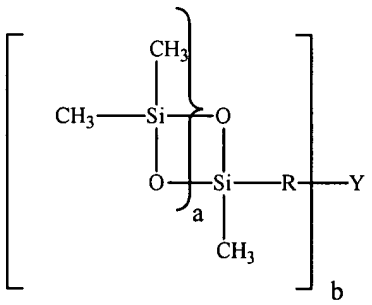


(I)

where R^1, R^2, R^3 and R^4 are independently selected from hydrogen, alkyl, alkenyl, aryl, heteroatoms, and substituted heteroatoms; and R^1 and R^2 or R^3 and R^4 may be taken together to form a cyclodiene.

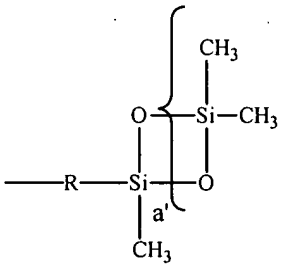
8. An electronic device comprising an encapsulated integrated circuit assembly comprising an integrated circuit assembly comprising an integrated circuit attached to a carrier substrate by a plurality of metallic connections, the metallic connections extending from the carrier substrate to the integrated circuit to form a gap between the carrier substrate and the integrated circuit; and an underfill material in the gap, wherein the underfill material is composed of a binder selected from the group consisting of a Diels-Alder reaction polymer and a polycyclosiloxane, wherein the Diels-Alder reaction polymer includes as polymerized units one or more dienophiles and one or more dienes, wherein at least one diene contains one or more hydrogens bonded to each of the olefinic carbons of the diene.

9. The electronic device of claim 8 wherein the polycyclosiloxane comprises a compound of formula VII:



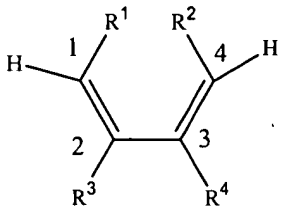
(VII)

wherein a = 1-20; b = the valence of Y; R is O, $(C_1\text{-}C_{12})$alkylene, $(C_1\text{-}C_3)$alkyleneoxy, arylene, and aryleneoxy; and Y is H, OH, $(SiE_c)_d$ and



; each E is independently R, H, O, OH, $(C_1\text{-}C_{12})$alkyl, $(C_2\text{-}C_{12})$alkenyl, aryl and $(C_1\text{-}C_{12})$alkoxy; c = 0-3; d = 1-100; and a' = 1-20.

10. The electronic device of claim 8 wherein at least one diene has the formula



(I)

where R^1, R^2, R^3 and R^4 are independently selected from hydrogen, alkyl, alkenyl, aryl, heteroatoms, and substituted heteroatoms; and R^1 and R^2 or R^3 and R^4 may be taken together to form a cyclodiene.